

19990715.ba v02_n610.bam.990715

>From ???@??? Thu Jul 15 23:16:14 1999
Message-Id: <199907151152.d6FBq7021850@sco.theporch.com>
Date: Thu, 15 Jul 1999 06:51:28 CDT
From: Old Tube Radios <boatanchors@theporch.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: BOATANCHORS digest 2610

BOATANCHORS Digest 2610

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by "Arden Allen" <gumbear@pacbell.net>
- 13) Ahab's Mackay, Corregidor CW message..and....
by Hue Miller <kargokult@proaxis.com>
- 14) Vertical Antenna Grounding
by "Richard Brunner" <rbrunner@gis.net>

Date: Wed, 14 Jul 1999 17:24:33 -0500 (EST)
From: "Roberta J. Barmore" <rbarmore@indy.net>
To: Old Tube Radios <boatanchors@theporch.com>
cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Ground-fault problems & grounding (My periennial grounding rant)

Message-ID: <Pine.SUN.4.10.9907141547150.17048-100000@indy3>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

Hi!

Most of us have got some sort of "radio ground." It's traditional, and one is usually best off giving the RF a short, direct path to earth. (Y'know, a balanced-fed dipole doesn't actually **need** one....)

...However! That ground rod can endanger you, be in violation of local electrical codes (probably voiding your insurance should there be an electrical problem), and cause all kinds of grief if not done by the book.

You **must** bond any ground rod (etc), you install to the power ground, which is most often a nice (if undersized) ground rod near the power company's meter. It is required by code, and it is a darned good idea; otherwise you have some big old sloppy unknown resistance between your ground and the power ground, and if something bad happens--like a power line falls across your antenna, for instance--the results will be unpredictable but unpleasant.

If you are using three-prong (U-ground) plugs & cords (and grounded outlets) on your gear and you've got a "radio ground," bonded or not, you'll have a bit of a ground loop and the possibility of some hum pickup exists; the bonded-together-grounds version is at least of low resistance and is usually quieter.

There are some exclusions in the Code for my line of work, which allow us to play a few tricks to avoid ground loops[*]--for instance, to have one massive ground bus connected to the metalwork of the gear **and** the ground terminal on the electrical outlets, said bus being bonded to the power ground at one and only one point; but it's tricky and **cannot** be done at home. Code calls for the grounding conductor associated with a circuit to be in the same conduit (or hunk of romex) as the line & neutral wires, and they're not foolin'.

(Even in the Theatre/TV/Radio/Recording biz, where we do strange and awful things with ground, most of us will have a grounding conductor pulled in with the line & neutral, though it may just be insulated at the load end of the wires and ground got from the main bus--having it there saves an awful lot of trouble when somebody gets stupid and whacks a conduit with live power inside! Also saves a great deal of work when you get an inspector who can't find the exclusions in his Code book).

While one might use a big isolation transformer to run the shack, and pick up the ground for the circuit(s) on the secondary side from the "radio ground" point (which still *MUST* be connected to the electrical system ground), to do so is to play fast and loose with the intent of the Code and is probably **not** kosher in most places; ground is supposed to

be carried from the source to the load and just detours around an isolation transformer. (They "isolate" the power, not the ground!)

Living with a mild ground loop is acceptable for most folks. If it's **too** awful, the RF can be transformer-coupled to the antenna/ground connections. (Yes, you still should bond your radio ground rod to the electrical ground). If that is done, note that lightning protection/antenna-grounding switch(es) should be on the antenna side of the RF transformer--and don't forget, all of the commercial baluns/ununs **do** have metallic connections between input and output; they are not suited to this application.

But in the usual house-sized house, the chances of a lot of HF noise from one piddlin' ground loop are pretty small. (On 160, maybe; but there's so much **other** noise on 160 in most cities and towns, how can you tell?) If your shack & radio ground rod is close by the power entrance and breaker box, all the better--a short bonding wire beats a long one on noise.

(For those of us still using the water pipes as ground, the job's half-done from the git-go; make sure they are all **metal**, and bonded as they should be to the electrical system ground and there it is. But nowadays, most houses and new ones especially, the water pipes aren't much of a ground and they're liable to be plastic from the house to the water main, if not all plastic throughout the house).

"Bonding" in this context implies a **permanent** connection, and the bonding conductor should be sized for the worst-case fault current; as a general rule, use the fattest wire you can come up with. I'd use insulated wire and run it outdoors, as a lightning hit or dropped power line can make quite a mess. The Code, local versions, etc. are all very clear that you can't have a bunch of "grounds" that are not connected to each other. It's a major bugaboo. (And favorite Code violation of the recording industry; but you have to understand, they live in a different and less-ordered universe; and they're allowed to fry themselves. We are not).

...On lightning protection, it's a good idea to disconnect antennas from the gear when not in use, and ground 'em with a short, direct path; lightning's road from sky to earth should **never** pass through your equipment. Alas, lightning's not especially clever, and will try any darned path it sees, so even the foregoing is not a sure-fire prevention; but it makes the odds of not having the gear fried a little better.

A quick OT note to close the rant: a lot of BA gear uses two-wire power cords. Ignoring transformerless stuff (handle with care!), this would be advantageous, especially with properly connected polarized two-prong plugs, were it not the sort of thing legal counsel tells me to advise against. The simple, old-fashioned scheme of using heavy ground wires to each and **every** chassis (again, mind the AC/DC stuff!!!), and of making

them the last thing you disconnect and the first thing you connect when unplugging/plugging in the gear, works quite well and offers reasonable safety as long as your radio ground is properly bonded to the electrical system ground *and* you never, ever fail to follow the correct procedure. But in this litigation-prone day and age, I would never actually suggest so doing. Such an approach is *not* idiot-proof and calls for careful thought and action. It is best to make a hobby installation foolproof. (Note that several of the ham electrocutions written up in QST from the '30s came about from *not* having all the chassis bonded together and to ground; and the folks that were killed were pretty sharp hams with nice installations. "Consistent" beats "smart" nine times out of ten, take it from someone who's better at the 10% side of that equation than the 90% side).

The foregoing applies *only* to the usual 240/120 "single phase" mains power wiring as applied in many residences in the United States. In other parts of the world, other methods are used--for instance, a lot of the UK has three-phase Wye *distribution* but houses get single-phase *service* and getting cute with grounding can get you real dead real fast if your neighbor loses neutral. (Losing your own neutral can be ugly in the States; there's another good reason to bond your ground to the system ground, at least you won't have much of a potential difference between them!)

73,
--Bobbi

* What's a "ground loop?" Well, a hunk of wire hooked to ground at each end forms a single-turn coil, which can pick up all sorts of stuff from nearby wiring, antennas, etc. In the broadcast biz, most any problem resulting from multiple, uncontrolled connections to earth is generally ascribed to "ground loops," and sometimes that's actually the case--in practice, about 75% of such troubles come from "stupid loops" instead, where we haven't thought through the interconnections.... :(But it's easy to fix 'em and blame it on a ground loop! And it gives the non-technical folks a nice, easy term for the problem. >blush<

KB9GKX "RJ" rbarmore@indy.net Roberta J. (Bobbi) Barmore
FISTS #3388 * G-QRP #10001 * ARRL * RSGB * WIA
Appreciator Of Vacuum-Tube Ham Gear and Vintage Keys

Message-ID: <002801bece64\$800c6520\$395d2299@default>
From: "Paul Bernhard Sr." <w2tu@email.msn.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: 3 phase Wye (Not only in UK)
Date: Wed, 14 Jul 1999 21:51:03 -0400

When I saw the mention of 3 phase Wye as being a UK system I had to put in my two-cents (or shillings!). Most of the medium voltage distribution here in the States is 3 phase Wye in urban areas. (usually 4160-2300 - phase v. X 1.73) In many of the rural areas 3 phase delta with the "high or red-leg" (although the code calls for it to be orange) is used. This was to give the "Edison" circuit (240/120, 3w 1ph.) for residential use and 3 phase 240 for light industrial or farm use. As the electric companies expanded this was intermingled and showed up both in rural and urban areas. This is why (not Wye) we have different voltages from different utilities such as 110, 115, 117, 120, etc.) The code calls these all nominal and are considered the same (110-120, etc.)

I always warn my apprentices not to take anything for granted. On construction (especially industrial) we run into every type of system imaginable and even some that are not!

Another thing to be careful of is terminology. Many words are used interchangeably and really are of different meaning such as grounded, grounding, intentionally grounded, neutral, mechanical ground, bonding, equipment ground, etc.

Just thought I'd add fuel to the fire!

Paul B. W2TU

P.S.: Look for me on 40, 20 etc. Saturday for the Historic ships special from the USS The Sullivans. I'll be using the classic Collins station just acquired for the ship. (KWM2A.312B5,30L1 & 516F2) Should be fun. Never could afford Collins gear when I was a young ham many moons ago!

w2tu@email.msn.com

Message-Id: <3.0.6.32.19990714190320.007df210@mail.willapabay.org>
Date: Wed, 14 Jul 1999 19:03:20 -0700
To: Old Tube Radios <boatanchors@theporch.com>
From: David Ross <ross@hypertools.com>
Subject: Isolation transformer hookup question
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

BAfolks -

I'm contemplating the use of an isolation transformer to power the radio bench here, and am seeking advice about just how to connect it.

Current plans are to connect the isolation transformer like this:

- Isolation transformer input side hooked up to 220V with the center tap connected to power NEUTRAL (and two ground rods out by the meter box).

- Isolation transformer output side will be strictly 220 with a center tap - no 110V single phase power will come from the isolation transformer. Isolation transformer output center tap will go to a local radio ground rod and to radio bench ground & all chassis grounds.

All 110V radio bench power will come through a separate 220V-110V transformer - it's primary fed by the secondary of the main isolation transformer.

The isolation transformer I have is 'box shielded', meaning that both the primary & the secondary have separate electrostatic shields. Both the primary & secondary shield connections are brought out independently.

The question is this... Where do these two shield connections go?

First guess is to connect the primary shield line to the primary NEUTRAL and connect the secondary shield line to the secondary NEUTRAL (radio bench ground).

Does this sound right? The transformer is a Topaz 'Ultra-Isolation' unit, probably possibly intended for use in a hospital.

73 and thanks

Dave Ross N7EPI ross@hypertools.com

Message-ID: <378D63AC.43D6@mr.net>
Date: Wed, 14 Jul 1999 21:29:32 -0700
From: "ROBERT F. KEMP" <rkemp@mr.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: F/S SX-101 MkIII
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Anyone interested in this, just e.mail me. Price \$210.00
shipped(continental U.S)(figure \$35.00 shipping that I'm including!).
Nice and clean, operational, no manual.
Bob Kemp
Lake City, MN. 55041

Message-ID: <378D4867.25F394F8@concentric.net>
Date: Wed, 14 Jul 1999 22:33:11 -0400
From: Michael Tallent <mtallent@concentric.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Ground-fault problems & grounding (My periennial grounding rant)
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Ok, now that we are all getting grounded, what about my vertical
antenna, coax fed and 150 feet from the house. It is grounded at the
base through an inductor. I could make sure that the house end of the
coax is always connected to the ground at the power panel if this what
is needed. I try to remember to disconnect it when not in use, but I
just moved back to lightning country after 27 years in California, where
lightning was a very rare event. This antenna is only connected to
vacuum tube equipment :-).

Mike W6MXV in KY

"Roberta J. Barmore" wrote:

>
> Hi!
>
> Most of us have got some sort of "radio ground." It's traditional, and
> one is usually best off giving the RF a short, direct path to earth.
> (Y'know, a balanced-fed dipole doesn't actually *need* one....)
>
> ...However! That ground rod can endanger you, be in violation of local
> electrical codes (probably voiding your insurance should there be an
> electrical problem), and cause all kinds of grief if not done by the book.
> You *must* bond any ground rod (etc), you install to the power ground,
> which is most often a nice (if undersized) ground rod near the power
> company's meter. It is required by code, and it is a darned good idea;
> otherwise you have some big old sloppy unknown resistance between your
> ground and the power ground, and if something bad happens--like a power
> line falls across your antenna, for instance--the results will be
> unpredictable but unpleasant.
> If you are using three-prong (U-ground) plugs & cords (and grounded
> outlets) on your gear and you've got a "radio ground," bonded or not,

> you'll have a bit of a ground loop and the possibility of some hum pickup
> exists; the bonded-together-grounds version is at least of low resistance
> and is usually quieter.

snipped much good stuff

> KB9GKX "RJ" rbarmore@indy.net Roberta J. (Bobbi) Barmore
> FISTS #3388 * G-QRP #10001 * ARRL * RSGB * WIA
> Appreciator Of Vacuum-Tube Ham Gear and Vintage Keys

Date: Wed, 14 Jul 1999 23:04:11 -0400 (EDT)
Message-Id: <1.5.4.16.19990714225906.1e6fff20@pop1.sympatico.ca>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
To: Old Tube Radios <boatanchors@theporch.com>
From: Andre Guibert <aguibert@sympatico.ca>
Subject: RE: 3 Phase W(In Canada)

Bonsoir to All
We have two Wye systems here, 120/208v and 600/347v.
Big problem if you need 240v for your big rigs.
Andre

Andre Guibert
aguibert@sympatico.ca

Date: Wed, 14 Jul 1999 23:06:27 -0400
From: don merz <71333.144@compuserve.com>
Subject: WTD: Hickok 292X Manual Copy
To: Old Tube Radios <boatanchors@theporch.com>
Message-ID: <199907142308_MC2-7D08-FC54@compuserve.com>
MIME-Version: 1.0
Content-Transfer-Encoding: 7bit
Content-Type: text/plain;
charset=us-ascii
Content-Disposition: inline

Hickok Manual Needed: I need a manual copy for the Hickok 292X "Crystal-Controlled Microvolt Generator."
--now that's a mouthful. Happy to pay costs or whatever works for you.
73, Don Merz, N3RHT

Date: Wed, 14 Jul 1999 22:32:37 -0500 (EST)
From: "Roberta J. Barmore" <rbarmore@indy.net>
To: Old Tube Radios <boatanchors@theporch.com>

cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Isolation transformer hookup question
Message-ID: <Pine.SUN.4.10.9907142207060.13065-1000000@indy1>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

Hi!

...And oh boy! Questions like Dave's require at the very least, the advice of a genuine, licensed, experienced *Electrician* and based on my own readings as a member thereof (but not, repeat *not* as an electrician) the IBEW, that union does a good job of making sure their Journeymen & Master Electricians *do* have a clue. Some places license & certify electricians, some do not, which is why I mention this. (I will *not* debate the topic, having bounced back and forth from labor to management several times).

Speaking as a broadcast tech and a ham, electrostatic shields are normally connected to the earth lead, *not* the neutral; and (I'll say it again) all the ground rods, connections to water-pipe and other points conventionally think of as "ground" are required by most every local code and the NEC to be *bonded* *together,* which term means a wire of specified size permanently connected. Clip leads don't count.

One problem that can come up with isolation transformers is the relationship of the isolated power to "plain old" power and to other isolated sources. It can be a real killer; some of the production test sets I maintained at the Essex Corporation (back in the dark ages of vinyl records and all the freon you could waste) were served with both isolated and "regular" power and owing to a very minor installation mistake, some exposed parts of them were at a potential of 240V to other exposed parts. It took a couple of folks getting bit *hard* to convince everyone, at which time the Electrical and Test Maintenance staffs had a fine huddle over an oscilloscope, dug through all of our wiring and their wiring and finally got everything safe.

Now, we were all just real good at our jobs, highly trained and skilled, several folks had looked the setup over, etc. etc. yakkety-yak; and we still came close to cooking some poor sods on the test line. It's easy to get this stuff wrong.

Get expert advice; check everything over by eye and by meter. Know it as well as your tongue knows your teeth and be *careful.* You rarely get a second chance and the fancier the setup, the more dice you are rolling.

Paul B.'s (working from memory, know the personality but I'm bad at names) comments on power distribution point to even more sources of surprises. Indianapolis Power & Light is conservative, so around here, houses get single-phase 110/220, while businesses and apartments often get

Y 110/208 or bigger stuff if they need it--your milage may well vary!
(High-leg 240 delta is uncommon around here; I have some at work only 'cos
we installed a step-down transformer for it for some of the gear with
delusions of clothes-dryerhood. It's fraught with gotchas).

73,
--Bobbi

KB9GKX "RJ" rbarmore@indy.net Roberta J. (Bobbi) Barmore
FISTS #3388 * G-QRP #10001 * ARRL * RSGB * WIA
Appreciator Of Vacuum-Tube Ham Gear and Vintage Keys

Message-Id: <199907150437.VAA08034@mail-gw5.pacbell.net>
From: "Arden Allen" <gumbear@pacbell.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Ground-fault problems/ isolation transformer question
Date: Wed, 14 Jul 1999 20:58:27 -0700
MIME-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 7bit

Rich;

> I have thought of connecting, say, a neon lamp in series with a couple
> megohm resistor between the transformer windings as a lesser-impedance
> discharge path.

A neon lamp serves no useful function. It would take approximately 60
volts to achieve conduction in a neon bulb, a voltage that could be unsafe
were a person to find himself between 60 volts and ground. As a lightening
arrester it would only operate as a peripheral discharge path, it could not
take the main lightening strike. As a static drain, a 1 megohm resistor
would be preferred. Proper grounding of equipment is the best safety
system for both leakage current and potential lightening problems. A
"floating" AC-DC radio chassis is not safe in any way with respect to
today's safety standards unless enclosed in an approved insulated case.
For an old acie-ducie radio to be safe, use an isolation transformer and
ground the chassis to the safety ground ("earth"). For my own collection
of AC-DC radios, none of them are located where a person could become
accidentally grounded without a great deal of effort (remember however,
beware of the ingenious idiot!)

Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

Message-Id: <199907150437.VAA08002@mail-gw5.pacbell.net>
From: "Arden Allen" <gumbear@pacbell.net>

To: Old Tube Radios <boatanchors@theporch.com>
Cc: "Old Tube Radios" <boatanchors@theporch.com>
Subject: Re: Ground Fault Problems
Date: Wed, 14 Jul 1999 20:39:49 -0700
MIME-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 7bit

Hi Bob;

> I have a question though - what do they do in hospitals? seems to me they
> have something special for critical circuits.

Hospitals use an isolation transformer (or several). These are special extremely high isolation types with constant monitoring and alarms if the leakage current in the system exceeds preset limits. They are built to medical equipment design requirements. It is essential that all patient monitoring systems have absolute control of leakage currents. Some electrically operated medical devices make a galvanic connection to a patients body, a potential for electrocution or serious injury if leakage currents are not limited to extremely small magnitudes.

Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

Message-Id: <199907150437.VAA08101@mail-gw5.pacbell.net>
From: "Arden Allen" <gumbear@pacbell.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Ground-fault problems & grounding
Date: Wed, 14 Jul 1999 21:10:16 -0700
MIME-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 7bit

Hi Bob;

> I want to thank everyone that replied to my post. I think
> I understand the situation with the 390a line filter but
> my question from all of this is what is the best way to ground
> period. I have driven an 8ft gnd rod in next to my shack and plan to
> run braid in and gnd everything to it. This is in addition to how the
> ac gnd is configured(not sure how it was done). How important is the gnd
> to the performance of these BA's. I think a really good gnd helps with
> tvi/safety but what about performance of rx's? Tnx Bob, AA8A

It has been reported here many times by those who are qualified to know (excluding myself) that your ground rod must also be connected to your building electrical service entry ground to be in accordance with up to

date codes. Proceed cautiously, ask your city building department or a local licensed electrical contractor (or several to see if you get the same answers).

Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

Message-Id: <199907150437.VAA08113@mail-gw5.pacbell.net>
From: "Arden Allen" <gumbear@pacbell.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Isolation transformer hookup question
Date: Wed, 14 Jul 1999 21:34:20 -0700
MIME-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 7bit

Hi Dave;

> Does this sound right?.....

No! But it also sounds like trouble to guess what it should be. Call Topaz and ask to speak to a sales or applications engineer. FIND OUT what Topaz intended the unit for and how they want it to be installed and used. Speaking from some experience with safety compliance issues, some of these electrical installation problems can get really complicated. Proceed with caution, get the right poop.

Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

Message-Id: <3.0.5.32.19990715005949.007efad0@proaxis.com>
Date: Thu, 15 Jul 1999 00:59:49 -0700
To: Old Tube Radios <boatanchors@theporch.com>
From: Hue Miller <kargokult@proaxis.com>
Subject: Ahab's Mackay, Corregidor CW message..and....
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

At 08:22 AM 7/14/99 -0500, mnhopkins@juno.com wrote:

>

> My post positing the existence of a species of long lived ship borne
>bloopers drew an apt response recalling the noble RAK....

> It's Mackay, brothers, Mackay... right off shore from River City. It
>was a Mackay I saw in some long misplaced article about robust
>regeneratives of the waves that underwent many updates but just kept on
>ticking them off in maritime service.

Michael, forgive me, but i would tend to lean toward the direction of the "urban myth" file with this one.

It's true, the VLF receivers RAK and RBA might have stayed fastened down in some Navy ships for some years after the war, but there were certainly not a series of updates. (Besides, what's to update ??)

As for HF regens, i believe, that after WW2 a vast selection of radio equipment became available. SLRs were available in great enuff numbers that even the tightfisted shipping companies could pick them up to replace anything older. Besides, freighters built in WW2, at least in the US, did not carry HF regens. the only regens installed as new equipment in commercial ships during the war years were LF.

I saw a photo of a freighter position in a '47 U.K. ham magazine. Besides the Marconi 730 regen, with its plugin coils (which i only was able to recognize because i have one....no doubt swapped out of some freighter being reworked at Seattle), there was a BC-348 and an HRO-5. I believe the first would have been the original receiver, the latter 2, postwar additions.

For a time i thot your description applied to the USNavy IP-501, which seems to have been in use in freighters from whenever it became surplus, in the mid 1920s (i think), to the onset of WW2 when it was replaced by newer style regens. But that one wasn't updated either, staying in original production model, as far as i have seen, til the last of its many voyages.

BTW, i recall even up to maybe 15 years ago some really atrocious sounding cw notes, worse even then chowpy-chowpit, and this on the ship bands. more like a metal spring sound, sproinggy - sproingit. (that's letter C, if you didn't recognize it.) One magazine reference claimed old BC-375s on Chinese fishing boats. Amazing that receiving ops put up with it.

i caught NPR's report on the demise of Morse this afternoon and one of the most poignant of its samples was a man reading the "last message from Corregidor" to the accompaniment of cw background. i wonder if that was from an actual recording of the transmission. it was *not* just studio generated audio because it had the "hard start" keying sound. is that realistic for a large USArmy transmitter? In it Cpl. (?) Irvin Stroebing (sp?) describes wounded and dead stacked in the tunnel and says "now I know what a mouse in a trap feels like". (this might be a good text for anniversary broadcasts by the Society for Wireless Anachronism.)

also there was an example of spark transmission, supposedly recorded 1925, from a press station. no doubt the transmitter sound (very high pitched mechanical buzzer sound) was very realistic. the code speed,

however, i found suspiciously slow, ca. 13 wpm, for a commercial press station.

My friend John AA7W remarked that this news item got him to thinking he should at last really learn to use a bug, and i had to admit it seems to be inspiring me the same direction.
regards, hue miller ka7lxy

Message-ID: <003301beceb7\$37ffca80\$8d3029d8@blah>
From: "Richard Brunner" <rbrunner@gis.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Vertical Antenna Grounding
Date: Thu, 15 Jul 1999 07:22:14 -0400
MIME-Version: 1.0
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Michael, und all:

A vertical antenna makes an excellent lightning rod, and should have some kind of effective grounding for lightning. (I think it is required somewhere in the Codes, but i couldn't find it.) Anyway, the inductor for a grounding path is fine for static charges, but ineffective for lightning. Lightning has a very steep wave-front and will not go through it, but will go around it! I suggest a small spark-gap from antenna to ground at the antenna base, to a ground rod there. I have a Butternut vertical HF9-VX with the same problem, and have the ground wire gapped close to the antenna base. There are some pits there, so there has been some activity. More than one ground rod is even better, but space them far apart or they will not be more effective than one. Disconnecting the coax inside when not in use is an excellent idea; the coax could lead the lightning charge into your house with disastrous results, so that will minimize the damage. Code sez you must ground the coax braid at the point of entry - a good idea.

Richard Brunner, AA1P, rbrunner@gis.net

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